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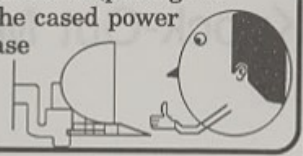

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NEWS ON 4

ANOTHER SPECCY GAMES SERVICE

Hot on the heels of last months announcement from James Waddington comes news of another Spectrum software finding service, run by Dean Cowery of 41, Pelaw Road, Chester-le-Street, County Durham, DH2 2HG.

Dean claims to have lots of contacts who deal with old Spectrum software and hopes to provide a service (obviously not guaranteed) to Speccy owners who want to track down that illusive game or utility. In the first instance Dean is looking for letters from people with comments on how they would like to see the new service run and develop, so if you are interested then drop him a line.

ATARI DENIES IT IS TO QUIT

Reports have been widespread for several months that Atari, one of the oldest established companies in the computer field, was either to close or was to seek a take-over by another company.

In the three months to September 1995 Atari lost $13.5 million which, when added to the first two quarters figures gave a year to date total of $24 million.

However, the firm acted quickly this month to deny the latest batch of rumours which it blamed on disgruntled ex-employees. Despite making at least 20 staff redundant an the loss of their US president Ted Hoff, Atari say that they are not about to follow Commodore into full liquidation.

SUB £300 LASER

Oki have launched their latest entry level laser printer - one directly targeted at the ink-jet market.

The Okipage 4w will retail at £249 plus VAT and should be in the shops in a few months. Boasting 600dpi and a smaller footprint than an A4 page it is targeted at the home user in a way that no other laser printer has been so far. There is even talk of adverts on Channel 4 later in the year. While slightly more expensive to run than the equivalent priced ink-jet Oki reckon that the extra quality of printing will make many people give the Okipage 4w a close look.

SAM VISION

A new SAM disc has just been launched by Fred Publishing to accompany their SAM C. Containing a number of extension library routines the disc is called SAM Vision and is priced at £14.99 including UK postage and packing.

SAM Vision provides advanced routines to do things like: Create and manipulate dialogue windows; Run ETracker music; Create screen-savers; provide advanced file handling including sub-directories under MasterDOS; Use numbers greater than 65535; Perform memory paging and manipulation; Provide advanced keyboard and printer routines. The package comes with a manual to help you get to grips with all the new features.

SAM Vision is the first of what Fred Publishing hope will be a series of library discs for SAM C and it certainly expands the facilities available to the C Programmer.

Credits:-

URGENT we need your news. Anything you think other people should know about. Each item printed earns the contributor 3 months extra subscription (*please claim when next renewing*).

The Editor Speaks

I spent the first week of February in sunny Barnoldswick, well it was sunny after the four inches of snow had blanketed the place and the nice men at the weather centre had warned me not to make my return to Gloucester for at least 24 hours. Still it did give me a bit longer to help Nev with the software development for the SAM hard drive. Long days in a cold garret, struggling to understand what Andy Wright had designed a certain bit of code in the SAM ROM or in MasterDOS to do, pausing only to grab a few morsels of food to keep our bodies going for a few more hours. Falling into a dead sleep as soon as we struggled to bed at 2am only to rise and start again before most respectable people had even arrived at work. All to help the advance of SAM technology. (Oh well. If I haven't got your sympathy yet then I had better get on with the real news). SAM hard drive owners will be pleased to hear that there will be a software update out to you quite soon. the progress being made now is really good. Nev and I managed to get to grips with both the ROM source code and that for MasterDOS (there is now even a set of files that allow us to reassemble MasterDOS, under Comet, on SAM - a major first as the code was originally produced on a CPC and then ported to a PC. The integration of HDOS into SAM Basic and MasterDOS is quite advanced and Nev hopes that the next release of HDOS will not need CALLs to access things for which standard SAM syntax is used. All in all, it was a few days very well spent, something that neither of us could have done without being in the same room.

While in the area I did take the opportunity to drop in on Derek Morgan and the SAM PD stand at the All Formats Show in Haydock. The show was certainly crowded and Derek seemed to be doing a very good job promoting the SAM cause. He had his 'SAM in a PC case' running and he hoped to have his hard drive attached for the next show. He was also drumming up customers for the video digitiser he is planning to launch very soon. It was well worth the visit to Haydock as I managed to pick up some 3½" discs at 15p each and a couple of PC power supplies to run hard drives (and SAMs) from.

My request for details on repair companies who still handle Spectrums has been well answered. My thanks to all who took the time to write. Some (but by no means all) of the letters are in this months *Your Letters*. It is good to see there are still a few left, although if there are any other companies you know of we would still like to hear about them.

And now, as they say, to something completely different. Jon Nixon, the artist who has produced most of ***FORMAT***'s front covers over the years, has become a dad for the first time. Emily Jayne Nixon was born on February the 6th in Cheltenham and weighed in at 10lb 12oz (which just makes my eyes water thinking about it.) Mother and baby are doing well, I'm not quite so sure about the dad who has still to come down from the clouds. Congratulations Jon and Ann-Marie and may Emily be blessed with her dad's talent and her mum's good looks.

Until next month.

Bob Brenchley, Editor.

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To order please send your original MasterDos disc as proof you have this software, your disc will then be returned with an extra HD LOADER file.
Software is **FREE** with any purchase of Power unit or Hard drive or Hard drive version of SC_WORD pro.

SHORT • SPOT

YOUR HINTS, TIPS AND PROGRAMMING IDEAS

Edited By:- John Wase.

Short Spot time again, folks; it seems to come round and catch me unawares every time. So here I am, once again, fighting to get this ready for Bob before he sends ***FORMAT*** to the printers without me...

You remember my dreadful warnings last month about PC-compatibles and the awful things they can do? Well; the story didn't end there. I was also reviewing a new notebook. It was a Pentium with Windows 95 on it. Eventually, I took it back and cut a deal on the review model, which was upgraded for me. Among the upgrades was a new, bigger hard disc. They came to run the upgrade. Win95 wouldn't. They eventually reinstalled it and I had the computer back. When I came to use it, mysterious things happened. It all boiled down to the new operating system. This would allow long file names, but the software used to transfer them onto the new hard disc didn't. Shambles. Now, let's give three cheers to the merry men who have sorted out the Spectrum and SAM. The file names take up the same space. You can use SAM to transfer Spectrum files. As far as I know, these filenames are also compatible with the new hard disc for SAM, and its software. Don't you think our designers could teach Bill Gates a thing or two? I do!

And now back to our evergreen contributor, Miles Kinloch of Edinburgh, with some more tips for the Spectrum. You know how you can use the Snapshot button on the PLUS D. And how the resultant stuff is all garbled, and you can't get the straight code for a screen back out! Well, here's the solution to the problem. A program called 'snapscreen' which will extract that screen from a 48k or a 128k snapshot. Miles has commented this extensively with REMs, so anyone wanting to follow it through will probably find these enough to see what's going on. Here it is, just type it in: I know it looks a lot, but most of it's REMs, and you can leave these out and refer to your trusty ***FORMAT***, can't you.

```
 10 REM       SNAPSCREEN
 20 REM    By Miles Kinloch
 30 REM       (PD) 1995
 50 REM PRELIMINARIES
 60 CLEAR 49550
 70 PRINT TAB 10; BRIGHT 1;" SN
    APSCREEN ": PRINT '''"This p
    rogram extracts the screenf
    rom a 48K or 128K snapshot.
    Justfollow the on-screen pr
    ompts."
 80 INPUT "Load snapshot from w
    hich drive?"'da: IF da<>1 A
    ND da<>2 THEN GOTO 80
 90 POKE 23728,1: CAT da: RANDO
    MIZE USR 8: POKE 23728,0
100 INPUT "Program no.? ";p: IF
     p<0 OR p>80 THEN GOTO 100
110 INPUT "Save screen to which
     drive? ";db: IF db<>1 AND
    db<>2 THEN GOTO 110
120 INPUT "Filename for screen?
    "; LINE n$: IF LEN n$>10 O
    R NOT LEN n$ THEN GOTO 120
140 REM EXAMINE DIRECTORY ENTRY
150 REM Calculate track/sector
    of file's directory entry.
160 LET t=INT ((p-1)/20): LET s
    =INT ((p/2)-(t*10)+.5)
170 REM Load the sector to RAM.
180 LOAD @*;t,s,40000
```

```
190 REM Add 256 if entry is in
    second half of sector, and
    PEEK 1st byte for filetype.
200 LET start=40000+(256 AND p/
    2=INT (p/2)): LET type=PEEK
     start
210 REM Reject non-snap files:
    filetype must be 5 or 9 (13
    3 or 137 if hidden).
220 IF type<>5 AND type<>9 AND
    type<>133 AND type<>137 THE
    N CLS : PRINT "THIS IS NOT
    A SNAPSHOT!": BEEP .8,-15:
    PAUSE 100: GOTO 90
230 REM Make a and b represent
    file's first track/sector.
240 LET a=PEEK (start+13): LET
    b=PEEK (start+14)
250 IF type=5 OR type=133 THEN
    GOTO 420: REM 48K snapshots
260 REM EXTRACT FROM 128K SNAP
270 REM First, determine which
    screen it is - the standard
     one at 16384, or the one i
    n RAM 7 at49152.
280 INPUT "Did you press 'Y' wh
    en making   this snapshot?
    (Y/N) "; LINE x$: IF x$<>"Y
    " AND x$<>"y" AND x$<>"N" A
    ND x$<>"n" THEN GOTO 280
290 REM If main screen, it will
    start at 161st sector; if s
    econdscreen, at 225th.
300 REM In 128K snapshots, the
    screen starts and finishes
    mid- way through a sector.
    This will be compensated fo
    r by loading toa lower addr
    ess.
310 REM Skip over the preceding
    sectors.(Load them in succe
    ssionto 40000, and PEEK the
     last two bytes in each, to
     follow throughthe sequence
    .)
320 CLS : PRINT "PLEASE WAIT."
330 FOR j=1 TO 160+64*(x$="Y" O
    R x$="y")
340 LOAD @*;a,b,40000
350 LET a=PEEK 40510: LET b=PEE
    K 40511
360 NEXT j
370 REM Now a and b hold first
    track/sector of screen.
380 IF x$="N" OR x$="n" THEN LE
    T addr=49679: REM For snaps
     withnormal screen, in orde
    r for the screen itself to
    start at 50000.
390 IF x$="Y" OR x$="y" THEN LE
    T addr=49551: REM For snaps
     withsecond screen, in orde
    r for the screen itself to
    start at 50000.
400 REM Now proceed as for 48K
    snaps.
410 GOTO 480
420 REM EXTRACT FROM 48K SNAP
430 REM With 48K snaps, screen
    is at start of file.
440 REM 6912 bytes will occupy
    a total of 13.5 sectors.
450 REM Last 2 bytes in sector
    always signify next track/s
    ector(usually this is the n
    ext actualsector on the dis
    k, except wherethe file has
     become fragmented).
460 CLS
470 LET addr=50000
480 FOR j=1 TO 15
490 LOAD @*;a,b,addr
500 LET a=PEEK (addr+510): LET
    b=PEEK (addr+511): LET addr
    =addr+510: REM Get the next
     track and sector, and incr
    ement address.
510 NEXT j
520 REM Ready to save screen.
530 SAVE ddb;n$CODE 50000,6912:
     LOAD d*;n$SCREEN$: STOP
9999 SAVE d1"SNAPSCREEN" LINE 10
```

The next item from Miles is related: it's 'snapout'; a temporary DOS overlay which provides the PLUS D with a Multiface-style 'Exit to Basic' option. Handy for escaping from machine-code programs where the break key is disabled. The Basic area and system variables must still be intact, however. Full instructions on screen as before.

```
 10 REM         SNAP OUT
 20 REM     By Miles Kinloch
 30 REM         (PD) 1994
 60 CLEAR 49999: GOSUB 1000
 70 PRINT TAB 11; BRIGHT 1;" SN
    AP7"
 80 PRINT ' TAB 6;"For G+DOS 2a
    /Betados"' TAB 4;"(Not Unid
    os or Disciple)"
 90 PRINT ''"Have you ever wish
    ed the +D had an 'Exit' opt
    ion like the Multi-face, fo
    r escaping to BASIC frompro
    grams where the Break key i
    s inoperative? This utility
     may bethe answer - it quit
    e literally lets you 'snap
    out of them' by  pressing t
    he snapshot button,   then
    key 'E'."
100 PRINT '"As it overwrites th
    eand¶VLcommands, it shouldo
    nly be regarded as a tempor
    ary overlay rather than a p
    ermanent feature. Install i
    t, therefore, only when req
    uired."
110 PRINT #0;AT 1,9;"PRESS ANY
    KEY": PAUSE 1: PAUSE 0: CLS
120 PRINT '"SNAP7loads in the f
    orm of anExecute file. It i
    ntegrates withthe DOS in a
    special way which  ensures
    that, if there are any  oth
    er DOS modifications alread
    y present which themselves
    alter  the snapshot routine
    s,these willnot be affected
     and will work asnormal. SN
    AP7can therefore  live quit
    e happily alongside thelike
    s of Pick-POKE-It, +D Poker
    ,the key '0' Interrupt patc
    h etc."
130 PRINT '"Even if you already
     have a Multi-face, the SNA
    P7function is actually more
     powerful in some  ways, an
    d can succeed in certainsit
    uations where the Multiface
      'Exit' would fail."
140 PRINT #0;AT 1,9;"PRESS ANY
    KEY": PAUSE 1: PAUSE 0: CLS
150 PRINT '"For instance, where
     a program   has been loade
    d from 128 BASIC  and the 1
    28K system variables inthe
    printer buffer have become
     overwritten. The Multiface
     Exit would then simply cra
    sh, but theSNAP7routine wil
    l detect if this is the cas
    e, and exit to 48BASIC inst
    ead. So, if you find  yours
    elf in 48K mode after exit-
    ing a 128K program, this wi
    ll bethe reason."
160 PRINT '"Another situation w
    here SNAP OUTcan cope is wh
    en the 128K shadowROM is pa
    ged in. Here, the Multi-fac
    e does not offer the 'Exit'
     option at all!"
170 PRINT #0;AT 1,9;"PRESS ANY
    KEY": PAUSE 1: PAUSE 0: CLS
180 PRINT '"Finally, if the pro
    gram is runn-ing an Interru
    pt Mode 2 routine,this will
     be turned off before  exit
    ing, in case it isn't compa
    t-ible with the BASIC edito
    r.Thisis particularly true
    of 128 modewhere RAM paging
     can be an addedproblem for
     Interrupt routines. This i
    s another instance where  S
    NAP7may succeed where the
    Multiface option fails."
190 PRINT '"SNAP7can also be ve
    ry handy for escaping from
    programs where23728 has bee
    n POKEd for error-trapping"
200 PRINT '"TO¶THE 'SNAP OUT' E
    XECUTE  FILE, PUT A DISK V`
    DRIVE 1VPRESS 'S' NOW. ANY
    OTHER KEYRE-READ THIS INFO.
    ": PAUSE 1: PAUSE 0
210 IF INKEY$="s" OR INKEY$="S"
     THEN CLS : SAVE d1"SNAP OU
    T.X"X,50000: PRINT "LOAD d1
    ""SNAP OUT.X""XINSTALL.": P
    AUSE 1: PAUSE 0
220 RUN 70
1000 REM Code Poker
1010 RESTORE : LET c=0: FOR a=50
     000 TO 50138
1020 READ d: LET c=c+d: POKE a,d
     : NEXT a
1030 IF c<>14996 THEN PRINT "Err
     or in data!": STOP
1040 RETURN
2000 DATA 167,237,91,162,32,33,1
     85,42,237,82
2010 DATA 200,33,185,42,34,162,3
     2,54,33,35
2020 DATA 115,35,114,35,17,9,60,
     235,1,51
```

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Now Includes FREE Copy Of DRiVER's Extras Disc 1

DRiVER's Extras Disc still available for existing users at £5.95 (INDUG members £4.95)

SCADs PD Yes, at last, we are please to re-release SCADs - the arcade game development system for SAM. Previously sold by Glenco at £24.95 we have now placed the software into the Public Domain so the disc costs you ***Only £2.50***. The full manual (over 200 pages) is also available for £12.95 (overseas please add an extra £1 to postage rates below)

- All prices include UK postage and packing (Europe please add £1, other overseas please add £2).
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Revelation Software

Revelation Software, 45, Buddle Lane, Exeter, EX4 1JS.


```
2030 DATA 0,237,176,17,38,48,1,3
     7,0,237
2040 DATA 176,175,33,200,32,119,
     35,119,35,119
2050 DATA 201,229,6,251,237,104,
     203,85,192,253
2060 DATA 33,58,92,253,54,0,255,
     253,54,49
2070 DATA 2,253,203,1,102,196,45
     ,48,205,215
2080 DATA 34,205,39,48,237,123,6
     1,92,253,203
2090 DATA 1,102,32,1,225,251,33,
     3,19,195
2100 DATA 79,0,201,175,237,71,23
     7,86,201,58
2110 DATA 92,91,230,32,33,0,91,6
     ,20,134
2120 DATA 35,16,252,254,222,40,4
     ,253,203,1
2130 DATA 166,62,16,50,92,91,195
     ,63,34
9999 SAVE d1"SNAP OUT" LINE 10
```

Finally, there's snap/new, which is a little program to load the snapout execute file and modify it to set Ramtop at 23999 and then NEW up to that value. The idea of this is to cope with situations where Basic HAS been corrupted or overwritten by providing a means of accessing the Basic editor for saving/examining code above 2400 (which will be left intact)

```
 10 REM LOAD AND MODIFY SNAPOUT
    TO 'NEW' WITH RAMTOP AT 23
    999
 20 LOAD d*"SNAP OUT.X"X: REM
    Install SNAP OUT
 30 FOR a=2756 TO 2786
 40 READ d: POKE @a,d: NEXT a
 50 CLS : PRINT "INSTALLEDVMODI
    FIED."
 60 PAUSE 150: NEW
100 DATA 62,16,205,63,34,205,21
    5,34,43,34,180,92,33,64,0,3
    4,56,92,33,191,93,34,178,92
    ,249,33,183,17,195,79,0
9999 SAVE d1"SNAP/NEW" LINE 10
```

Many thanks, Miles: do please keep 'em coming in. They're great.

Next, I have a letter from George Siougas of Thessaloniki, Greece, who mentions that he's a Spectrum owner, and a Short Spot fan. Great stuff, George. I've had several good students on our MSc course from Thessaloniki University; remember me to them if you meet them! But I digress. George mentions that in June 1994, I said that Miles Kinloch had found a "whole raft of bugs in BetaDOS and a couple in G+DOS", and I said, "I'll leave it for a month or two, and if he's found no bugs to add to the list, I'll give you an update". And since then; not a word! Well, I'm pretty careless, and I guess that information's got lost in the general shambles, so I don't know where to look. Can I appeal to Miles' good nature to repeat it... Please!

Next, over to Roy Burford. If you remember, last month, we featured Roy's adaptation for the Spectrum of a program from 'Fun Mathematics on your Computer'. We typed in the main program; 'surface1', and then we merged in 'mersur2', to give an interesting result. Trouble was, it was a bit too interesting. There is a very interesting error in the listing, due to the way in which the Spectrum works things out. Funnily enough, the same error occurs on the Commodore 64, and Roy writes to tell me that it is much more prominent there, because of the C64's more prominent pixel. The displayed surface is not symmetrical about the vertical centre line. This is because as the computer truncates equal positive and negative values, it makes them unequal! This turns up as an absolute difference of unity at the plot point which uses integer coordinates! Roy tested this out as follows:-

```
INT(-15.5)=-16   INT(+15.5)=+15
```

So he looked into it a little further. This gave him something he was unaware of:-

```
INT(-15.5+1/2)=-15
```

```
INT(+15.5+1/2)=+16
```

Just think about this carefully. You've apparently done the same thing, once in the positive mode, as it were, and once in the negative. But in one case, it's been rounded up and in the other, rounded down. Nasty! A bit of experimentation on Roy's part showed that:-

```
INT(-15.5+49999/100000)=-16
INT(+15.50001+49999/100000)=+16
```

and this gave a clue to what was happening and how to correct it. It's a bit subtle, and not very easy to spot initially: no wonder Roy didn't see it immediately. He phoned me as soon as he had, but I typed in the instructions almost the day it dropped on the mat, and sent the copy off to Bob. So Roy's done a splendid job to rectify matters.

Here's 'jwsurfnm'. Merge this in with 'surface1' from last month's ***FORMAT***, and save the new program as 'jwsurf1'. This is essentially the same as last month's 'surface1', but the plot errors have now been eliminated.

```
  4 REM Merges to eliminate plo
    t error from surface1, p8,
    current FORMAT.   090296.
120 LET sx=256: REM Hires scree
    n columns
130 LET sy=176: REM Hires scree
    n rows
180 LET aa=INT ((hx*s/2)+1/2)
520 LET max=-hy: LET bb=INT ((a
    a+a-5*s*(a+ABS (a))/(5*s))+
    49999/100000)
540 FOR b=-bb TO bb STEP 5
590 LET z=INT ((-10*COS (r/5)+b
    )+49999/100000)
740 IF v<0 OR v>(sy-1) THEN GOT
    O 760
```

Unfortunately, the same errors occur in all the little merge programs. So we need new ones. Here are 'nmergefors2, 3, 4 and 5', each with the plot error eliminated, to surfaces 2, 3, 4 and 5,

```
450 PRINT AT 21,0;"Surface 2
          z=exp(-rxr)"
590 LET z=INT ((75*EXP (-r*r/60
    0)+b)+49999/100000)

450 PRINT AT 21,0;"Surface 3
          z=sin(r)/r"
590 LET z=INT ((125*SIN (r/5)/r
    +b)+49999/100000)

450 PRINT AT 21,0;"Surface 4
        z=cos(x)cos(y)"
590 LET z=INT ((10*COS (x/10)*C
    OS (y/10)+b)+49999/100000)

450 PRINT AT 20,0;"Surface 5
        Monkey Saddle"; AT 21,0
    ;"XxX(X-Y)(X+Y)/SQR(XxX+YxY
    )"
590 LET z=INT ((x*y*(x-y)*(x+y)
    /(2000*r)+b)+49999/100000)
```

I promised last time we'd look at the other bits in a further issue, didn't I. Well, a promise is a promise, in spite of the laws of natural cussedness! Many thanks Roy.

Now back to John Cleveland of London. You remember; he wrote about using Tasword (and other) fonts in the SAM Wordmaster DTP kit. The present words of wisdom apply both to the Spectrum and the SAM, provided the caveats noted in the text are adhered to. John writes that there is just one point that needs some clarification arising from his words in February's column. Tasword screen fonts are not directly usable in Wordmaster because, in Tasword, only the lower four bits of each byte are used, whereas in Wordmaster the pattern in the lower four bits is duplicated in the upper four bits. The following program for SAM or Spectrum converts a Tasword front to Wordmaster format by effecting the necessary duplication.

```
10 FOR n=addr to addr+767
20 POKE n, PEEK n + PEEK n*16
30 NEXT n
```

...where addr is the address of the font in memory. Incidentally, the Spectrum addresses of the fonts in Taswords 2 and +3 are 61184 and 53504 respectively.

There; that was easy, wasn't it. Too easy! There's a teeny snag; Wordmaster blanks out the top row of pixels, so unless your Tasword font has been designed with the top row blank, you can expect to find decapitated T's and other horrors!

The character duplication in the native Wordmaster font can easily be illustrated graphically by running the following program (adapted from a listing in 'Delving Deeper in Your ZX Spectrum' by Dilys Powell) while the Wordmaster code is in memory:-

```
10 LET addr=97280
20 FOR n=addr TO addr+767
30 LET p=PEEK n
40 FOR b=7 TO 0 STEP -1
50 PRINT AT 21,b; CHR$ 143 AN
   D (p-2*INT(p/2))=1
60 LET p=INT)p/2)
70 NEXT b
80 PRINT AT 21,12; n''
90 NEXT n
```

For the Spectrum, change line 5, and change the address in line 10 to 64512.

It'll make matters a lot easier if you disable the 'SCROLL?' prompt before you run the program. For the Spectrum, the extra line: `25 POKE 23692,0` ...will do the trick, while for SAM, the command SCROLL CLEAR does the business.

This program can, of course, be adapted to examine any other font you please. Examples are the SAM screen font at 20880, or the Spectrum ROM font at address 15616. But if we use it to examine the EMULATED Spectrum ROM font at address 48384 in the SAM version of Wordmaster, we find the characters from address 48904 upwards are corrupted. This explains why the lower case letters appear as splodges when you use the ROM font for text in Headliner.

Hang on a second, though. Isn't there something vaguely familiar about that number 48904? Why, yes! It's the address called in line 10 of Wordmaster's Basic to get it started. No wonder, then, that if you load in an intact font to replace the corrupted one, Wordmaster will not start!

How, then, to overcome the Headliner problem? Answer: take an intact Spectrum ROM font and use the CONVERT! extension program to convert it to a '>Fnt1' type file as described on page 8 of the Headliner manual. Many thanks, John, and I note that you hope to write soon. Please keep 'em coming...

We've already had one item from overseas; from Greece. It's amazing, though, what an international audience we have. Here's a little item from S.M.Kempes of Rotterdam, Holland, who has for some time been trying to change Arabic numerals to Roman. This does the business! Well: I hope it does; there's no disc, so I'm typing it in in the small hours in a hotel room in Middlesbrough. Wonderful idea, these notebooks, especially if you don't sleep too well...

```
 10 REM I=1,V=5,L=50,C=100,D=5
    00, M=1000
 20 MODE 1: CLS: PRINT "MENU"
 30 PRINT "1. CHANGE TO ROMAN
    NUMERALS (<3000)"
 40 PRINT "2. CHANGE TO ARABIC
     NUMERALS"
 50 GET X
 60 ON X GOTO 100,300
 70 GOTO 20
100 INPUT "ARABIC NUMBER";A
110 IF A>3000 THEN GOTO 20
120 PRINT AT 21,0;A;"=";
130 IF A>1000 THEN LET M1=INT(
    A/1000): ELSE GOTO 145
135 IF M1=1 THEN PRINT "M"
137 IF M1=2 THEN PRINT "MM"
140 LET A=A-M1/1000
145 IF A>900 THEN PRINT "CM":
    LET A=A-900
150 IF A>500 THEN LET D=INT(A/
    100): ELSE GOTO 165
155 IF D THEN PRINT D
160 LET A=A-D/500
```

```
165 IF A>400 THEN PRINT "CD";:
    LET A=A-400
170 IF A>10 THEN LET C1=INT(A/
    100): ELSE GOTO 187
175 IF C1=1 THEN PRINT "C";
177 IF C1=2 THEN PRINT "CC";
179 IF C1=3 THEN PRINT "CCC";
185 LET A=A-C1/100
187 IF A>90 THEN PRINT "XC";:
    LET A=A-90
190 IF A>50 THEN LET L=(INT A/
    50)
195 IF L THEN PRINT L
200 LET A=A-L/50
205 IF A=9 THEN PRINT "IX";: L
    ET A=A-9
210 IF A>=10 THEN LET X1=INT(A
    /10): ELSE GOTO 230
212 IF X1=1 THEN PRINT "X";
214 IF X1=2 THEN PRINT "XX";
216 IF X1=3 THEN PRINT "XXX";
220 LET A=A-X1/10
225 IF A>=9 THEN PRINT "IX";:
    LET A=A-9
230 IF A>=5 THEN PRINT "V";: L
    ET A=A-5
240 IF A=4 THEN PRINT "IV";
250 IF A=3 THEN PRINT "III";
260 IF A=2 THEN PRINT "II";
270 IF A=1 THEN PRINT "I";
280 PAUSE: GOTO 20
```

Notice line 40? Well, he confesses he can't do it. No, he can convert Arabic numbers to Roman, but can't write a program to do the opposite: turn Roman numerals to Arabic. Can you? If so, send it in to Short Spot...

Now a little note from Abu Dhabi (told you this was an international issue, didn't I). P.A.Basheer encloses a small UniDos routine to label his Unidos discs. The UniDos uses the last 10 bytes of the first file's header (246 to 255) to park the disc's name if it is available. To be fair, the UniDos comes with a create file to name the discs. This program does not use the create file, is quite user friendly, and is ideal if you have a bunch of discs to label. Insert the disc, run the program and the name on the disc is displayed, with the option to change it. If the disc does not have a name, question marks are displayed. If you opt to label the disc, UniDos will display it whenever you CAT the disc in future.

```
  5 REM disc label for UniDos
  7 REM by P. A. Basheer
 10 CLEAR 29999
 15 DIM z$(10)
 17 DIM x$(10)
 20 LOAD @1,0,1,30000
 30 FOR f=1 TO 10
 40 LET z=PEEK (30245+f)
 50 LET z$(f)=CHR$ z
 60 NEXT f
 70 PRINT "The disc label is
    ";z$: INPUT "Change? y/n
    ";y$: IF y$="n" OR y$="N"
    THEN STOP
 80 INPUT "Enter new name: ";
    line X$: IF LEN x$<1 OR LEN
    x$>10 THEN BEEP 1,1: GOTO
    80
 90 PRINT "New label: ";x$
100 FOR f=1 TO 10
105 LET x=CODE x$(f)
110 POKE 30245+f,x
120 NEXT f
125 SAVE @1,0,1,30000
130 CAT 1
989 STOP
999 SAVE d1"label"
```

And that's it. Just one further point. Mr Basheer writes that BetaDos has a gem of a utility called 'Squash' which is a nice snap compressor. This execute file works only on G+DOS and on BetaDOS, though! It crashes the UniDos. Has anyone come up with any pokes to let the squash work with UniDos as well?

Many thanks, Mr Basheer.

Please keep all your snippets coming to me at:-

John Wase,
Green Leys Cottage,
Bishampton,
Pershore,
Worcs,
WR10 2LX.

And thank you for all your contributions: without them I couldn't get a column together, could I? See you next month.

VIDEO TITLING
USING A SPECTRUM

By:- Deryck Morris.

Anyone who owns a Sinclair Spectrum, can produce very good results in video titling, and add a real professional touch to their Home Video Films, at a fraction of the cost of an Amiga System proving that some of the best things in life are (almost) free!

I use tape, Microdrive and 3½" Disc with either a ZX Spectrum+ (48K), or a ZX Spectrum +2 (128K Grey Case), but find that I get the best results with the 48K model.

The program to achieve this is 'PROTITLER 4', produced on tape it can easily be converted to Microdrive or disc, and is obtainable from the Programmer, Bill Hall, of Hall Video Products, 147, Gladstone Street, Winsford, Cheshire, CW7 4AU, Telephone 01606 551925, who is always only too pleased to give any assistance. (That's my commercial break!, but I would like to add that my only connection with this company is that of a very satisfied customer.)

COMPOSITE VIDEO OUTPUT.

A perfectly quiet and better quality recording can be made if a Composite Video Socket is fitted to the computer to connect it to the video recorder. This is connected to the 'Video In' socket and by-passes the RF stage of both machines, it also enables the use of the 'Audio In' socket at the same time for recording sound-track.

If you have a 48K Spectrum then this can be done as follows:-

Disconnect everything from the computer and undo the screws to open up the machine. Find a suitable place in the casing near to the modulator (the big silver box top left), where a 'chassis phono socket' can be fitted without touching any part of the circuit board and drill a suitable hole. Solder two lengths of thin insulated wire to the socket connections. Thread the wire through the hole drilled, and fix the socket with the backing nut supplied. Before proceeding further, check to ensure that nothing will touch anything that it shouldn't when it is all reassembled. Next solder the wire that is connected to the centre pin of the plug to the rear wire that enters the left-hand side of the modulator. Now examine the lid of the modulator, and on the left (above the wire just soldered on) there is a small tag - bend this out, roughly at right-angles to the case, and solder the other wire to this. CHECK AGAIN, that nothing will short out, then reassemble the computer, carefully plugging in the keyboard leads.

If you have a 128K Spectrum then take the following steps:-

Note: This can only be carried out on the 128+(Grey Case), and the 128+ machines, not the 128+3 or 128+2 (Black Case) models.

An adaptor which fits the RGB (8 pin) socket can be made with an 8 pin plug connected with screened co-axial cable to a phono plug, connect the centre of co-axial to Pin 1 (plug), connect

screening to Pin 2 (plug) and likewise on the phono plug, centre of co-axial to centre pin and screening to the outer casing. I believe that there is an RGB to Composite Video available, in the Maplin catalogue, for just a few pounds, which sounds as though it could do the job on the 128K but again, I have not tried it for myself. (Any feedback on this would be appreciated if anyone does try it).

The computer is then connected to the Television/Monitor via the V.C.R. which is then suitably tuned to a spare channel, (I find 'AV' the best), to obtain a good computer test signal. The output from the computer can then be recorded in the normal manner on the recorder.

System connected, we're ready to go!.

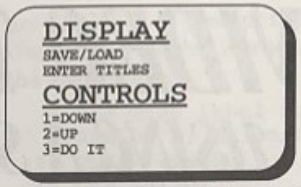
PROTITLER 4.

The software has been deliberately kept as flexible as possible to allow you to design your own display from scratch. This flexibility comes at the expense of automatic features and you will find that there is practically no 'error trapping' and the program will offer little help when planning your display, in other words, the program will do exactly what you set it to do even if the display is nonsense, remember "Garbage in, Garbage out!".

The program consists of a pair of character 'crunchers' which convert the standard computer characters in size and style before displaying them on screen in a variety of ways.

There are 32 lines in PROTITLER 4, so you can split the text into display pages and decide what emphasis to give to each line, if you want to decorate some pages, these will take up text lines.

When loaded, the Main Menu is displayed. When selected, displays will then be self explanatory.



The Main Menu

Firstly, select 'Enter Titles'. Text can be in upper or lower case and graphics, you can mix graphics, symbols and normal text on the same line but not lower case characters, you are strongly advised to plan the title sequence on paper in advance. It makes life a lot easier if you are following a script rather than just making it up as you go along, you should first write down every line of the text in the order of appearance, decide on text size and print mode, whether or not you want to decorate any pages with graphics, remembering that this will take up text lines. The next step is to decide how you want each page to be presented and then removed.

Depending on the occasion, you may want a bright, colourful, fast-moving display with lots of scrolls and colour changes, or you may want to keep it simple and dignified with fades and cuts, don't forget lines which merely say 'Starring' or give a heading such as 'Bridesmaids', etc.. Don't play a guessing game when spelling people's names - make sure, a simple spelling mistake will always be spotted and will cause acute embarrassment for years to come.

After entering your text, you can then decide on Font/Size/Style/Mode.

FONTS. There are four fonts (basic character styles) in PROTITLER 4. Fonts 1 to 3 can be upper case, lower case or symbols (£ + = ! * ?) etc. Font 4 has upper case and symbols but lower case letters are dedicated to graphics, which can be typed in as a line of text, they can be Bell, Horseshoe, Heart,

Clover Leaf, Car, Candles, just to name a few of the 16 possible.

SIZE. The text can be expanded to 20 times it's height so long as it does not go off the bottom of the screen, it can be moved up by using the 'position' command if necessary.

STYLE. There are 11 extra styles which can be superimposed over any font, giving 44 possible variations for each size of text. Be careful though, as some styles may make the text less legible (or even illegible).

MODE. Modes 1 to 4 can have 'styles' added but cannot be widened. Mode 5 can be widened but cannot have styles. If you try to widen a Mode 1 - 4 line or Style a Mode 5, you will see a 'Wrong Mode' prompt.

COLOURS. Choose the background colour, this can suit the mood of the film to be titled or whatever you want, this can always be changed later if so required. Pick the change that you want to make for the current line and then pick the colour with the cursor. A change to the INK, PAPER or BORDER will be seen straight away, a change to the Background or Effects will need a screen effect to see. (See EFFECTS). Paper refers to the immediate back- ground of the line. If you want to make sweeping changes to the colours, return to the main menu, select Display, then select General Colours - which gives the facility to change the colours on all lines from the current line to the end of the display.

When satisfied, and not before, return to the Main Menu and select 'Display', again the menu will be self explanatory, view each line as it is, by moving it Forward or Backward, and then 'Start' to view the complete program. At this stage, if you require to inspect or alter any aspect, press key 'E'. The display will stop as soon as the computer has finished its current task and the editing menu will appear, you don't have to hold the key down, the computer knows 'E' has been pressed. The editing menus have the first few characters of the current line at the top. If there is no text 'Blank Line' will flash instead. Select 'Reverse' to back up one line without triggering an effect. Selecting 'Position' will cause the first character of the line to flash. Use keys 1 or 2 to move to the position wanted, press key '3' to place the line. Selecting 'Text' leads to further menus allowing changes to Mode, Font, Style and Size.

EFFECTS. Between every line being printed, PROTITLER 4 will carry out 4 screen effects. If you select Effects from the main editing menu, you will see a list of the effects which occur before and after the line. If the effect has '*' on the right, there is a timing pause attached. The first part of the line is shown in the middle of the effects. If you want to remove an effect, point the cursor at it and press key '4'. The effect and the pause will be replaced with a 'No Effect'. This does not effect the display screen straight away, but the next time the display runs, the effect will not happen. If you want to alter a timing pause, press key '5'. To replace the effect with another, press key '3', the effects are then shown. (A long menu).

At the top or bottom (or both), you will see 'More Effects'. Select this to view the other pages of effects. Place the cursor by an effect, if you press '4' you will see a demonstration of the effect (where possible). To grab an effect for the display, press key '3', you will be asked for a timing pause and then the effect will be placed on the map. If you select Border you will be asked 'Which

Graphic?' Likewise if you select Cake you will be asked 'How Many Candles?'

Try to use only the effects after the line to avoid confusion with the border graphics. (This does not apply to line 1).

Some effects need special mention. Sideways scrolls and the slow scroll move only the text or ink coloured items leaving the paper colours behind. The Background command changes all the paper colours printed to the background colour set for the last line printed. The amount of vertical screen movement in the Low/Mid, Slow, Fast and Down scrolls is dictated by the last line printed. The Wait command will pause the display until a key is pressed which is useful for presentations. The Restart command provides continuous display. Normal dims it to standard, (this should not be confused with the Bright On/Off, which is the standard Spectrum command and only affects subsequent printing). The first On/Off command will switch Bright On, the next Off. The display always starts with Bright, which should be remembered if starting the display between two On/Off commands. If using the Fadeout command, remember that the fade is from the ink to paper colours of the last line printed. To fade more than one line on, the lines should be cut with ink matching the paper and background. The 'Effects Colour' of the last line dictates the colour of all lines on the screen when the 'Fade In' command is reached. The screen will appear to flash during the fade if you have a particularly large amount of 'ink' on the screen.

Now you have produced your 'Work of Art' it is time to make any minor detail changes, and time for restraint. It is easy to get too fussy about the 'Masterpiece' and spend hours of unnecessary embellishments that won't be appreciated. Remember, your audience is probably expecting to see an amateur production using Letraset or even crayon on a cardboard sheet! They will be pleasantly impressed with simple titles presented in a quiet, professional manner. Save 'fun' effects for 'fun' films.

Finally having spent some considerable time producing your work, be sure to save it with the Save/Load facility provided in the program.

I get a lot of pleasure and satisfaction titling and editing my own video films, my first major attempt was a nephew's wedding, his bride and him now get a lot of pleasure in watching it.

I have now purchased the HAMA EASY CUT, (Edit Controller), and intend to use this to produce even better Home Video Films. The Hama Easy Cut is a practical compact editing computer with audio mixing console and integrated video section for sound and picture post-processing. Mult-language operator prompting via on-screen display ensures exceptionally simple operation. The source player ie. Camcorder, is cable controlled (Control-L, LANC, 5 Pin Edit), the recording machine is infra-red controlled. A built-in learning program makes it easy to match the EASY CUT with virtually any video recorder. The beginning and end of scene are set with the 'IN/OUT' keys. Up to 192 scenes can be defined. All scenes can be assessed before they are copied and, if necessary, be changed once again beforehand. Scenes may be cut (one picture is instantly replaced by another), or faded out to black or white. Copying losses are compensated with the built-in enhancer.

My thanks to Bill Hall and Hama for the use of some of their notes in compiling this article.

Pro-DOS Page

By:- John Guthrie.

Welcome to the first Pro-DOS column. I have volunteered to write this column for the ***FORMAT*** Magazine, having been a member of it for sometime (alright Jenny), with a break for a couple of months. I have only read reviews of software available for Pro-DOS and Pro-DOS itself and nothing of the many facets of the program, i.e. the serious stuff, not only the games of which there are thousands, to name but one.

It is these aspects I have been asked to write about, so this will not be a review, but rather tips on CP/M 2.2 and it's various commands and the places where you can buy the games or the serious stuff. Although I might throw in the odd review of a game or any of the serious programs such as word-processors, machine code programs and any new programs that may come along, I also want input for this column from you the reader, anything of the above nature will do, as this column can only function with your help as well. So send in all your snippets of information, anything CP/M related, to the address at the end of this column.

Now! down to business. Is anyone having trouble with batch files? You are? Then read on. A batch file is the file on disc with the extension of .BAT at the end of the filename. It's a method of giving a number of commands to CP/M in succession without having to type each command in one at a time. You can create a .BAT file by using a word-processor such as ZDE, and they can be very useful, especially for common command strings. One example would be the STARTUP.BAT file which you can use immediately after booting up Pro-DOS.

Type `ZDE16 STARTUP.BAT` to load ZDE and present you with the file STARTUP.BAT open and ready to write to. Now type in the following lines exactly as shown (if you have two external drive a use C: to replace B:):-

```
copy ?oh.com b:
copy batch.com b:
protect b:*.com
hide b:*.com
cls
```

Type above lines in lower case only. Now save the file onto your copy of the systems disc (not the original which you should only keep as backup). To run the file from the A> prompt, insert the systems file disc in drive A and type `BATCH STARTUP` then press return.

This batchfile copies the program files COPY, FORMAT and BATCH to drive B: then hides and protects them before tidying things up by clearing the screen. This tip was passed to me by Matthew Hunt, when me and Matthew ran a similar column for the SAM Coupé Adventure Club, run by Phil Glover.

While on the subject of .BAT files, I need help on how to pass strings to a batch file, is there anyone out there who could help? Please write and tell us how it is done.

Since I bought the original Pro-DOS

program, it has undergone a change, namely it's title (it is now called Pro-DOS LITE) and it's price £29.99 for the two discs when I bought Pro-DOS in 1991, compared to £12 now, even though the Pro-DOS manual is now on the disc and you have to print is out yourself. The full CP/M manuals are available separately but you will have to contact B.G.Services to check availability and price.

I will close now, see next article. Oh! I nearly forgot those addresses. Here they are:-

My address

John Guthrie,
2O3, Long Lane,
Bolton,
Lancashire,
BL2 6EX.
Tel. 01204 416874

B.G.Services for the Pro-DOS LITE program and CP/M manuals.

B. G. Services,
64, Roebuck Road,
Chessington,
Surrey,
KT9 1JX.
Tel. 0181 287 4180

For public domain and shareware discs, send an SAE to:-

FDOS CP/M Public Domain
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1, Mapperton Close,
Canford Heath,
Poole,
Dorset,
BB18 8AF.

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C-MATHS

PUTTING THE POINT BACK INTO SAM-C MATHS - Part 2.

By:- Ray Bray.

Before continuing the second part of this article, I think I must explain an apparent anomaly in the method used for declaring many of the functions used in the FPCALC library. As the functions are able to deal with both signed and unsigned decimal numbers, as well as integers, it must seem odd that many of the function arguments are designated as unsigned int.

The first point to make about this is that, when processing the FPCALC functions, the C System only has to manipulate the values as strings, therefore it is unconcerned whether the values are signed, unsigned, decimal or integer. All the calculations are performed by the Floating Point Calculator and other routines in ROM, including conversion from strings to numeric values and converting back to strings before handing over to the C System again.

Secondly, as the System is only concerned with the location of the numerical values, ie the pointers to the variables, then the opportunity has been given within FPCALC to allow addresses of strings to be used as an alternative to variables, so that tables can be constructed or variables stored at permanent locations in memory, in the form of ASCII strings. These are designated by their absolute addresses and must be null terminated. For example the string for 140.50 would be stored as bytes 49,52,48,46,53,0 and addressed by the location of the first byte.

Nevertheless, as the C operating system is oblivious to the exact definition of the function arguments and, as on most occasions the function arguments will be in the form of string variables, in the interests of clarity and convention it would seem sensible to declare the functions in the form (char *str1, char *str2) instead of (unsigned int a, unsigned int b). This form will be used in future but, unless you want to, there is no necessity to change any functions you have written in the original form.

More Special Functions

Having disposed of that, we will start this month by describing more special functions to manipulate the values. You will recall that last month one such function, 'fetchfp(...)' was described, to fetch a value from the stack and place it in a variable. So far we have only shown how values may be placed on the stack by the arithmetic operators. Two special functions to enable values to be placed directly on the stack and another to allow values on the stack to be printed to the screen, will now be described.

stkpf(char *str)

This is used to stack a value which is specified either by the name of a character variable or by a numerical address. For example, stkfp(num); will stack the value held as a string at char num[10] or at char *num. Alternatively stkfp(32000); will stack a null terminated
~~~~~~~~~~

string value which has been stored at 32000.

inputfp(char *str)

This enables on-line input of a string value, as with Basic, with the input being terminated by keying RETURN. The input value is placed directly on the stack and at the same time the value is displayed on the screen and recorded in the character variable nominated, or stored at the address nominated. The stored value is automatically null terminated. For example, on executing:-

```
at(10,10);inputfp(num);
```

the value entered will be placed on the stack, assigned to the variable num[10] and be printed on the screen at line 10 column 10. As described in the previous function, an address in memory could be used in place of a variable.

printfp()

This prints the top value of the stack without assigning it to a variable or an address in memory. The value so printed remains on the stack. The print position can be set by the 'at(lin,col)' function.

The code for these three functions is given at Listing 1. Add this code to the Functions File listing already entered and re-save the file. Also add the following three function descriptions to the FPCALC Header File and resave:-

```
void stkfp(char *str);
void inputfp(char *str);
void printfp();
```

Listing 1.
Additional Special Functions.

```
//STACK A FLOATING POINT NUMBER
// str=pointer to or absolute
// address of value string.
#ifdeclared stkfp
void stkfp(char *str)
{
#asm
pop af
pop de; Address of string.
push de
push af
call stknum; (bootfp() routine)
#endasm
}
#endif

//INPUT A VALUE AND PLACE ON
//STACK AND DISPLAY IT
//str=pointer to or absolute
//address of input string.
#ifdeclared inputfp
void inputfp(char *str)
{
#asm
pop af
pop hl; Address of string.
push hl
push af
push hl; 1st copy of address
push hl; 2nd copy
ld bc,0
push bc; Counter
;
;Input value:-
inputfp_1:
ld a,(23611); FLAGS
bit 5,a
jr z,inputfp_1
ld a,(23560); Last key pressed
push af
ld a,(23611)
res 5,a
ld (23611),a
pop af
cp 13; Check for RET key press
jr z,inputfp_2
pop bc
pop hl; Fetch destination
ld (hl),a; Record input char.
inc hl
inc bc
push hl
push bc
push af
ld a,2
call 274
pop af
rst 16; Display char.
jr inputfp_1
;
inputfp_2:
pop bc; String length
pop hl
ld a,0
ld (hl),a; Add null terminator
;
;Stack number:-
pop hl; Start address of string
ex de,hl
call stknum_2;(bootfp() routine)
#endasm
}
#endif

//PRINT TOP VALUE ON STACK
//TO SCREEN. VALUE REMAINS
//ON STACK
#ifdeclared printfp
void printfp()
{
#asm
call 382; Convert FP to Dec.
push de; Address of string
push bc; Length of string
;
; Print value:-
call stknum_2; Restack value
ld a,2
call 274
pop bc
pop de
;
printfp_1:
ld a,(de)
rst 16
inc de
dec bc
ld a,b
or c
jr nz,printfp_1
#endasm
}
#endif
```

Operator Functions

The operator functions given in Part 1 showed how the coding for arithmetic operators is laid out. This month the format for the algebraic operators will be described. These are divided into two categories the sine, cosine and tangent operators, and those which convert the values of a given sine, cosine or tangent into the resulting angle; acs, asn and atn, (see the SAM Users Guide for a description of these).

In order to avoid users having to include additional programing to carry out conversions from/to radians and degrees, all these functions have been written so that, on calling the function, you can select which input or output you wish to use by setting a flag to 0 or 1. The general form of the algebraic function call is:-

```
sinfp(0); for working in degrees
```

or

```
sinfp(1); for working in radians
```

The six operators should be named sinfp, cosfp, tanfp, acsfp, asnfp and atnfp. Note that, unlike standard C, these functions do not declare a value but operate on a value already on the stack. In the case of the first three operators, the value will have to be placed on the stack using 'stkfp' or 'inputfp', but for the last three it will usually be on the stack already as a result of a preceding calculation. The format of the function code for the first three of these functions is as follows:-

```
#ifdeclared sinfp
void sinfp(int f)
{
#asm
call radians
rst 40
defb 57
defb 51
#endasm
}
#endif
```

To write the cos and tan functions it is necessary to amend 'sinfp' in lines 1 & 2 to 'cosfp' and 'tanfp', and amend 'defb 57' to 'defb 58' and 'defb 59', respectively.

The format of the acsfp, asnfp and atnfp functions is:-

```
#ifdeclared acsfp
void acsfp(int f)
{
#asm
rst 40
defb 61
```

```
defb 51
call degrees
#endasm
}
#endif
```

To write the functions for 'asn' and 'atn', change 'acsfp' in lines 1 and 2 to 'asnfp' and 'atnfp', and change 'defb 61' to 'defb 60' and 'defb 62' respectively.

Having added these six functions to the FPCALC .C file, re-save the file, add the following lines to the Header file FPCALC .H and re-save that file.

```
void sinfp(int f);
void cosfp(int f);
void tanfp(int f);
void acsfp(int f);
void asnfp(int f);
void atnfp(int f);
```

Note also that these operators call two sub-routines which enable the choice of using degrees or radians depending on the setting of the flag (int f). The routines 'radians' and 'degrees' should be located in the 'bootfp()' function, which you will recall must be declared before using FPCALC for the the first time in any program. The coding for these two sub-routines is at Listing 2. To incorporate them into the FPCALC .C file the following amendments should be made to the 'bootfp()' function:-

1. At the end of the 'getaddr' sub-routine add a new line: jr bootfp_2; Exit.
2. Between the end of 'getaddr' and the Exit Point type all the code given in Listing 2.
3. Save the revised FPCALC .C file. No change is required to the Header File.

Listing 2. Addition to bootfp() Code.

```
;CONVERT DEGREES TO RADIANS
;
radians:
pop hl; Return address
pop af
pop bc
push bc
push af
push hl
ld a,c; Operator flag.
cp 1
jr z,bootfp_2; Using radians
;
rst 40
defb 240; Stack Pi/2
defb 0; Degrees * Pi/2
defb 38
defb 90; Stack 90
defb 5; Divide by 90=radians
defb 51
jr bootfp_2
;----------------------------
;CONVERT RADIANS TO DEGREES
;
degrees:
pop hl
pop af
pop bc
push bc
push af
push hl
ld a,c
cp 1
jr z, bootfp_2; Using radians
;
rst 40
defb 240; Stack Pi/2
defb 5; Radians/ (Pi/2)
defb 38
defb 90
defb 0; Multiply by 90=degrees
defb 51
;----------------------------
```

That concludes the algebraic functions available in the SAM FPC routines. An example of how the above functions can be used is provided by a demonstration program.

Listing 3. Demonstration Program

It is suggested that you should refer back to Part 1 to remind yourself of the three forms of statement for divfp and multfp. Don't forget to reset ORG to 25900.

Problem: How far can a ladder 10 metres long reach up a wall if the minimum safe angle from the vertical is 15 degrees? How far from the wall is the base of the ladder?

```
#include "stdio .h"
#include "fpcalc .h"
main()
{
char len[3],ang[3],hgt[10],
 bas[10];
bootfp();

//height=length * COS angle.
at(1,0);
printf("Enter ladder length in
 metres: );
inputfp(len);
at(3,0);
printf("Enter angle in
 degrees: ");
inputfp(ang);
cosfp(0);
multfp(0,0);
at(5,0);
printf("Height= ");printfp();

//base=height * TAN angle.
stkfp(ang);
tanfp(0);
multfp(0,0);
at(7,0);
printf("Base distance= ");
printfp();
}
#include "fpcalc .c"
```

Description of program.

The length and angle are entered to the stack and to their respective variables using 'inputfp'. The angle is entered last so that it can be operated on by 'cosfp' which replaces the angle with it's tangent value. The top two values on the stack are then multiplied using 'multfp(0,0)'. The 0's indicate that both values are already on the stack. The result is then printed to the screen using 'printfp' which leaves the value of height on the stack. To calculate the base, the angle has to be placed on the top of the stack using 'stkfp', the tangent of the angle is then found by 'tanfp'. We now have the TAN and the height on the stack which are multiplied using 'multfp(0,0)' as before, and then the result is printed to the screen using 'printfp'.

Finally, I will describe one function

CODE	DESCRIPTION	FORMAT
04	N1 ↑ N2	A
06	Swop N1,N2	B
08	N1 MOD N2	A
09	N1 DIV N2	B
10	N1 BOR N2	A
12	N1 BAND N2	A
13	N1 OR N2	A
14	N1 AND N2	A
The next six codes delete the 2 values from the stack and replace them with 1 or 0 (true or false).		
15	N1 <> N2	A
16	N1 <= N2	A
17	N1 >= N2	A
18	N1 < N2	A
19	N1 = N2	A
20	N1 > N2	A
28	Swop N2 and the value 2	B
29	Swop 2nd value and the one below	B
37	Duplicate N2	B
The next four codes delete the top value from the stack and replace it with 1 or 0 (true or false).		
44	N2 < 0	B
45	N2 <= 0	B
46	N2 > 0	B
47	N2 >= 0	B
63	LOG of N2	B
64	EXP of N2	B
65	ABS of N2	B
66	SGN of N2	B
67	SQRT of N2	B
68	INT of N2	B

Table of SAM FPC Codes

which does not call any sub-routines and which can be used as a model for many other functions which you might wish to add to the library. This function discards the top value on the stack:-

```
//DISCARD TOP VALUE
#ifdeclared dropfp
void dropfp()
{
#asm
rst 40
defb 7
defb 51
#endasm
}
#endif
```

If you include this in the Function File do remember to make the necessary entry in the Header File and resave both.

SAM FPC Codes

As promised in my first article, the table given on the previous page lists the Floating Point Calculator codes (not already given), which could be used to expand on the list of FPCALC functions already described. This list does not hold all of the available codes as some of the SAM FP codes are only suitable for writing programs in machine code. The last column in the table indicates an existing format on which a new function can be based, 'A' being the format used for 'divfp' in the first article and 'B' being the format used for 'dropfp' above. N2 refers to the top value on the stack.

That is all we have room for this month. The next article will cover some additional functions which, though not essential, will enhance the usefulness of the FPCALC library, and I will include further programs demonstrating the use the functions.

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QUAZAR SURROUND

Reviewed By:- Alan Hawes.

As a musician, of some 15 years or so, I have often found that the SAM doesn't support any serious music software. The Midi sequencer was one of the few pieces of software that offered more to the serious musician than programs like E-Tracker and the Sound Machine.

So when I was at the Gloucester show last April I was attracted to a stall boasting a new sound card for the SAM. Totally out of character I placed an order within a few days of taking a flyer from the stall.

When it arrived my computer was unfortunately being repaired so I spent many a day admiring the box without actually knowing what it did. The unit itself is enclosed in a metal box boasting the obligatory L.E.D. There are two jack sockets on the side which are for stereo sound or full surround sound and one more port for a sampler module which will hopefully be released.

To get the Quazar to work you need to connect it to an amplifier and, obviously, to speakers. This shouldn't cause any problems - even I managed to hook it up to a thirty watt amplifier!! Trust me this can cause earth tremors when turned up full volume. The Quazar is capable of processing 8 or 16 bit samples at varying frequencies. If you've ever experienced samples on P.C.'s you should understand what this is all about.

All the software needed to drive the Quazar is included plus one or two utility programs. I must admit that the MOD player for the Quazar is possibly my favourite. For those who don't know, MOD files are code files containing samples and the information on how to play them i.e. the duration and pitch. There have been quite a steady supply of these on Fred which can be played on the MOD player written by Steffan Drissen. The version included with the Quazar is 'crippled' to only work with the Quazar. However, once you have listened to the MOD files through the Quazar you'll never want to listen to them any other way!!

There is also the code for detecting whether the unit is connected or not. 8 and 16 bit samples, for testing that the Quazar is working. A sample player that you can use in your own games (I've recently written a silly football game that uses sampled sound effects) and a demo of what the Quazar can do.

The manual, included, is quite brief but all that is needed to get yourself working.

A monthly support disk called *Soundbyte* can be subscribed to, this includes news on games supporting Quazar sound, games and updated versions of light cycles although it takes on a new dimension when a 16 bit sound track is playing as well. This game has since been improved and is also available, although I can't remember the price, from the designer Colin Piggot. It boasts added features such as power ups etc.,

Also included on soundbyte is the occasional MOD file, additional utilities - my favourite being the speaking clock (tells you the time every fifteen minutes, whilst you are programming, or when you prompt it) and samples for your ever expanding collection.

There are also some other programs available for use with your Quazar system.

Quazar Studio. This utility allows you to modify and add effects such as echo, reverb, fade in, fade out, amplify, to name a few, to sample. There is also the chance to mix other samples in although they are quite large files so you'll probably get about just under a minutes worth of sample in memory. Using the MOD ripper, on Soundbyte 2, you can extract samples contained within the MOD files and use them within the studio. You soon build up quite a collection of samples, although, this isn't too much of a problem with the hard drive around. The program uses a wimp style and very easy to use.

Quazar Video Construction Kit. This program allows you to create multi media presentations on the SAM. You are restricted to a predefined window size but the demos I've seen on Soundbyte are pretty good. The samples are all timed by the program and the graphics need to be created in an art package. Where's a digitiser when you need one?

Overall the Quazar is a very professional piece of hardware and currently has good software support with more on the way. Although, none of the packages support HDOS at present (doing this means you lose another 2 pages of memory meaning less space for the sample) I have found that, combined, the hard drive becomes very useful as, explained earlier, samples can be very large files.

With the possibility of a sampler being produced and software that allows more processor time whilst the sample is being played (i.e. possibility of more games being produced with sampled sound running during the game) the Quazar is, in my opinion, a very good buy. Plus I believe Colin Piggot has put the price down!! But don't quote me on that.

For further details contact:-

Colin Piggot,
204, Lammond Drive,
St Andrews,
Fife,
KY16 8RR.

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The HELP PAGE

Edited By:- Ray Bray.

I am pleased to see that this month we have received a few queries on Spectrum, the first of which was a letter from H.Smart of Selkirk, Scotland. His set up is a Spectrum +2a with an old, but still working, Newbury Data 1500-M printer and he uses Tasword Plus Two for word-processing. He wanted to add a disc drive and so bought a PLUS D Interface and a 3½" disc drive and, at the same time, a grey Spectrum +2. He has two problems.

Firstly, the disc drive will not work with the +2a and secondly, he cannot get the printer to work properly with the +2, (despite having Tascon Plus Two).

Dealing with the +2a disc problem first. One of the main problems with the +2a is that it was built with a +3 circuit board and, as a result, the expansion port's edge connector is different from the standard Spectrum. If you order a new PLUS D, and state it is for a +2a, you are supplied with a 'fixer' board that goes between the +2a and the PLUS D and alters the connections round so things work. However, if your's does not have the extra board then I understand that two pieces of kit (which were sold by B.G.Services - tel 0181 287-4180) are useful in overcoming some of the +2a expansion port problems. These are the +2a Mod Kit and the FIXIT. Although, unfortunately, Brian Gaff is no longer in full-time business due to his failing eye-sight, I believe that he still has some items for sale, so it might beworth while phoning him to ask for his advice and seeing if he still has any of these items for sale.

Turning to the problem of compatibility between your printer and the +2. Looking at the sample print-out you sent with your letter it is seen that the characters being printed are all from the IBM #2 character set between codes 128 and 255, so either the printer is interpreting the codes incorrectly or, for some reason, Tasword is actually sending these codes. Unfortunately you didn't mark on the print-out what characters were supposed to be sent to the printer. As the printer works correctly with the +2a (as your letter shows), and if you didn't alter any of the dip switch settings on the printer when changing it to the +2, then the fault must lie with the printer settings you are using with Tasword. You don't mention in your letter whether you have tried printing from Basic using LPRINT, and whether this produces the same result? I am not familiar with your make of printer so am not able to advise on any of the settings which might have a bearing on this, and I have not been able to find any reference to a similar problem in past issues of ***FORMAT***. All I can do is appeal to readers who might have come across such a problem in the past to write to us with their solution.

Our next question comes from P.A.Basheer who writes from Abu Dhabi in the U.A.E. He says that while he uses UNIDOS and likes it a lot, he does miss some of the facilities offered by BetaDOS, like multi-sector access and the compression utility. To enable him to use either operating system at will, he wonders whether it would be possible to piggy-back the UniDOS ROM and GDOS ROM so that they could be switched in and out as required. Well, I am not

technically qualified to answer this question but I believe that it was feasible to piggy-back the Spectrum +2 and +2a ROMs and switch them via the Chip Select pins. If this is the case, and as the two DOS ROMS have identical pin connections, then it might be possible to do the same thing by switching the relevant Output Enable pins (low to enable) to selectively page-in either ROM. I think you would have to switch the Chip Select and Read pins as well but I don't have any data on these chips. Are there any technical experts amongst our readers who can advise on the feasibility of this and perhaps give instructions on how it might be done?

Whilst writing, P.A.Basheer would like to inform us that he has traced the source of the problem he was experiencing with his Datel PLUS D system some months ago, where he kept receiving a 'Check Disk in Drive' error message. The problem was that the local power source does not go over 220 Volts whereas the Datel power supply is designed to operate from 240 Volts - the resulting output is therefore liable to drop below the required working level. Since obtaining an alternative power unit to produce 6V from a 230V input, he has had no problems and now runs a dual drive system using Universal Drives via a DUC cable.

The final query comes from David Newberry of Broxted, Essex, who is trying to convert some programs written for a TSR-80 computer (Model 1, Level 2, 16K), to work on Spectrum and SAM. At the beginning of some of the programs is the line; POKE 16553,255. David wishes to know what the POKE does and how he might need to change this to enable the programs to run on Spectrum and SAM. I have no knowledge of this computer, and as you were not able to include a listing I cannot even make an inspired guess! Have any of our readers any knowledge of the TSR-80 and provide an answer to this?

Further to my comments last month on getting the SAM-C function 'dtoi' to work, and my feeling that there was a more elegant way of achieving this rather than having to make a dummy 'utoi' call first. Well, Ettrick Thomson kindly came up with an answer which, although I have now been able to get the code to assemble and run, the result is always zero. No doubt I have somehow misunderstood his instructions! Meanwhile, I have discovered that the function works properly if you make the call to 'dtoi' as follows:-

```
utoi,dtoi(str,&num);
```

Ettrick also came up with the answer to another problem with the 'string2 .h' functions. As you may know, the existing 'itou' function fails with the error message: 'itou:EQU $ Multiply Defined Symbol'. (I think that should be 'Multiple Defined Symbol'). It just so happens there is another function called 'itou' held in the 'stdio .h' library, in which the definition is similar but for the 3rd parameter, which is radix instead of length, and this leads to the error report. The solution to this problem is to make another copy of the 'itou' function and alter the name, Ettrick used 'mitou' which seems a good title. I am not sure whether any other functions make a call to the string2 'itou' which might cause problems.

That's all we have for this month. Please keep sending your problems/ answers to the following addresses:-

Anything SAM or General Purpose:-
Ray Bray (***FORMAT*** Help Page),
Spring Cottage, Bourne Close,
Porton, Salisbury, Wilts, SP4 OLL.

Anything +3, CP/M:-
Mike Atkins (***FORMAT*** Help Page),
7O, Rudgwick Drive,
Bury, Lancashire, BL8 1YE.

Please remember that if you want any discs/printouts etc returned then you must include an SAE.

YOUR LETTERS

Dear Editor,

This relates partly to Nick Xylas's letter on rumours and gossip - Vol 9 Nº 4, partly to ***FORMAT***'s recent appeals for articles, and totally to the vast myriad of possibilities SAM holds within. How about a regular page or two picking out examples of latest disc magazines and other software, pointing out points of interest and with greyscale screenshots. Or how about getting people to send in graphical artwork. Another idea would be to give over two or three pages to ideas from any readers on what further hardware and software developments would really boost SAM's happiness, and a few pages to step-by-step instructions on how to build this, that or the other. A bit like Short Spot with wider scope, applying to both hardware and software, and the synergy between the two.

If this were successful, it will be a stronger focus for the Z80 world than ***FORMAT*** already is. From peoples' home-made prototypes, and through to manufacturers and software publishers, a vibrant family of hardware and software, and pull together and grow more dynamically.

As a creative tool, SAM has tons of potential - look at things like dedicated word processors and video titlers - SAM is *FAR* more versatile, and falls between the two in price. Did I hear somebody was making a genlock or was it just gossip? Maybe such 'soft' news could bring different developers to work together, so that one better product emerges instead of two possibly poorer ones - they might each have ideas not considered by the other. On the harder news front, it's good to see products like *SC_Word pro* bringing printed output quality up closer to where it belongs on the SAM. There seem to also be graphics packages for SAM that I don't know about. Maybe there could be a feature in ***FORMAT*** specialising on a different type of product each month, reviewing what's available for different Z80 machines? By the time you've exhausted the categories, you can cycle back round again with newer info.

There seems to be a need for SAM to embrace more of its latent expandability, especially now that the hard drive interface has surfaced. How do other readers feel about connecting TWOup upon TWOup upon TWOup? An idea occurred to me, and I would like to know how feasible it is. It's just that without the wedge-shaped keyboard housing, SAM becomes stackable, providing tidy add-on space as and when it is needed. Put the keyboard wedge on the end of some tough 17-way ribbon cable and away you go. I don't know if it is just me, but the possibilities from here seem to be endless. Acceleration? Graphics? Anything else? Every added Z80 and ASIC would multiply colours on screen by 16, the palette by 128, add 4.5MB to RAM capacity, and 6Mhz (Hopefully more like 20Mhz- depends what can be done with what) to the overall effective speed. This would depend on a truly modular design and software to connect the processors. This would give more power and versatility to SAM, even though we all know the SAM as it is now, is adequate for the needs of most

PC users. Especially now with Driver and with hard disc access.

How may SAM owners also own a working Spectrum? How many PC owners are there in the world? How about a system whereby a SAM can make it a lot easier for a PC user to use the PC (SAM operates and organises it for them), and also stands alone as a portable unit. SAM could utilise PCs and Spectrums to great advantage, first the resources locked away in the PC, and secondly the extra processing power provided by the Spectrum. I envisaged this similarly to the way Z80s are used as sound processors in consoles and suchlike.

These ideas might sound a bit sketchy, but I thought they were worth sending. If other readers can send in similar ideas, whatever level their technical knowledge; an open forum on SAM design/innovation will grow. This should re-boost the inspiration originally behind Sinclair, behind MGT and behind the SAM Coupé. The Elite was essential, as was the hard drive interface. Surely it's time for the enthusiasm to break free once again.

What art packages are available by the way, and is there a technical drawing package around?

Yours sincerely, Richard Mason.

Phew!!! What a lot of things to cram into one letter. I will answer some and leave others for readers to comment on.

We did try having a Computer Art page in early issues of ***FORMAT*** but only received a handful of screens to print. If readers send in their work then we will try and publish them, either as printed items in ***FORMAT***'s pages or as a special disc of computer art.

Letters talking about ideas, for SAM or Spectrum, hardware or software, are always welcome. What I don't like to do is to use the **News On 4** page for gossip.

And I'm sorry to say it would be very difficult to connect a SAM keyboard in the way you describe. ***Ed.***

Dear Editor,

With reference to your request for companies that still repair Spectrums, one that I have used quite a few times in the past (for my ST as well) is KPR Micro-Systems. Their address is 34, Petunia Crescent, Springfield, Chelmsford, Essex, CM1 5YP and phone number 01245 468554.

There is also a very good service and repair manual by T.I.S. Computers which as well as a circuit diagram gives every known fault and a list of probable causes for the more adventurous owners. Available from Infotech & Stree at 76, Church Street, Larkhall, Lanarkshire. ML9 1HE, priced at £15. Phone 01698 883334/888343 or fax 01698 884825.

I trust that this is of some help.

Yours sincerely, Patrick McMahon.

Dear Editor,

Just a few words to say thankyou for the latest issue of ***FORMAT***. Also, just a few more words about myself.

I own a Spectrum +3, a SAM Coupé, and an Amiga A600 computer.

Just recently I have been toying with the idea of a disc mag for the adventure players out there on the SAM. I'd really like to know if anyone is interested in such a venture coming to fruition on the SAM, and, maybe, at a not so later a date, for the Spectrum as well, mainly +3. If so, I'd be grateful if they could get in contact with me. I've also had a talk with Colin Mac'D from FRED, he's giving me a plug which is nice of him, and I hope to generate some interest from that area of SAM as well. Don't be surprised if you see me begging for coverage everywhere! By the way, ***FORMAT*** is pretty smart as well!!

Yours sincerely, Darren Sparrow.

Well Darren, there has always been a reasonable following for Adventure games so good luck with your plans. Anyone who is interested can write to Darren at 29, Chestnut Avenue, Eastleigh, Hampshire, SO50 5AN. ***Ed.***

Dear Editor,

I have just read your February's Editorial and I attach below two sources for Spectrum repairs. I have no experience of J.R.C. Camera Repairs, but H.S.Computer Services of Unit 2, The Orchard, Warton, Preston, Lancs, PR4 1BE, Tel/Fax 01772 632686) have, a few months ago, repaired the disc drive on my +3, very satisfactorily. The price was negotiated with them by phone, the repair carried out and my Spectrum returned and only then was an Invoice raised by them.

Now the 3" Disc problem - I have found an excellent source and I have not had one failure from them to date from the many I have ordered from them. They are supplied post free for orders over £5.00 and currently economically priced at only £1.00 each, which near enough to approaching the cost of the standard 3.5 inch drive discs. If +3 users then format these discs to 208K per side in lieu of the normal 173K per side, then they are on to a winner!

The address is: Wizard Games, 1, North Marine Road, Scarborough, YO12 7EY. Tel: 01723 376586.

Hope this information now solves your Spectrum Readers problems.

Yours sincerely, Bill Buxton.

Thanks for writing Bill, at £1 each those 3" discs are really cheap, although still at least 4 times the price of a 3½" disc. ***Ed.***

Dear Editor,

Come on Bob 'pull your finger out!', you ask for information on Spectrum Repair Companies, when you get it you either don't use it or forget it! I refer to ***FORMAT*** Vol 8 Nº 2 page 33, Robert A. Connolly's letter and again ***FORMAT*** Vol 8 Nº 4, page 37, my letter.

Anyway, here goes, neatly presented, not scribbled, two repair companies who I have used in the past and can thoroughly recommend:-

J & P Electronics Ltd., Unit 45, Meadowmill Estate, Boxon Street, Kidderminster, DY10 1HH, Tel 01562 753893, and JRC Camera Repairs who advertise in ***FORMAT***. Also, for good measure although I have not used them, but they advertise Spectrum/SAM repairs. WTS Electronics, Studio Master House, Chaul End Lane, Luton, Beds. LU4 8EX.

I did note the request from R.Barnard and yourself in January ***FORMAT***, but thought that previous copies would have 'done the trick!', so sorry for the delay.

January ***FORMAT*** only 28 pages, February ***FORMAT*** only 36 pages, what's happened to our usual, value for money 40 pages? Hope this will not be a thing of the future especially with FORMAT PC in the pipeline, it may well as you say "bring added benefits to ***FORMAT*** itself" but not at the expense of your current loyal members.

Lastly, a query please, can the PCG DTP Pack for Spectrum/PLUS D 3½ Discs be transferred and used on SAM Coupé or does it require it's own Software?

Kind regards to all at ***FORMAT***.

Yours sincerely, Deryck R.J.Morris.

The problem with repair companies for the Spectrum is that they have been dropping out in rapid succession. The issues you refer to are over a year old and a lot has changed in that time, hence my request for up to date information on who is still offering a service.

The January issue of ***FORMAT*** has always been a small one, it has to be produced in a shorter period due to Christmas and in recent years has either been 28 or 32 pages. Forty pages seems

West Coast Computers

West Coast Mail Order,
Format Publications, 34, Bourton Road,
Gloucester, GL4 0LE. England.

Below you will find details of the full range of SAM hardware now available.

CODE	DESCRIPTION	PRICE
	COMPUTERS - Now with extended two year warranty.	
W1020	SAM *élite* - 512K - Single Drive. 512K RAM, Built-in Printer Interface, Scart cable for direct connection to monitor or scart TV.	£199.95
W1021	SAM *élite* - 512K - Dual Drive. As W1020 but with twin disc drives.	£259.95
W1025	SAM Coupé - 512K - Reconditioned but with new modern style drive fitted, V3 ROM, new keyboard, 6 months full warranty. Limited availability.	£139.95
W1026	SAM Coupé - 512K - Reconditioned with single slimline drive, V3 ROM, New keyboard, 90 day warranty. Very limited availability. Ideal first step into the world of SAM.	£90.00
	INTERFACES (work with both SAM *élite* and SAM Coupé unless otherwise stated)	
W1101	SAM Disc Drive Upgrade. Have a second drive fitted to your SAM *élite* or a replacement/second drive for your Coupé. Fitting and return postage included in price. Ring 01452-412572 for instructions on how to send your computer.	£79.95
W1124 ** NEW **	SAM Coupé Disc Upgrade Kit Version 2 - all you need to upgrade to a twin drive machine or to fit a replacement for your existing drive. Needs reasonable soldering skills to fit. Comes complete with all instructions & components. All you need is a standard 3½" drive mechanism.	£29.95
W1125 ** NEW **	SAM Coupé Disc Upgrade Kit - as above but ready assembled. All you need is a disc drive and a screwdriver to fit.	£39.95
W1102	External Parallel Printer Interface - the SPI (for Coupé).	£24.95
W1106	SAM Mouse System. Interface, Mouse and Software. Plugs into mouse port on rear of SAM. More and more software now works better if you use a mouse.	£39.95
W1107	External Disc Drive Interface and Parallel Printer Port (for Coupé).	£44.95
W1108	Internal 256K Upgrade (for older SAMs with only 256K of memory).	£34.95
W1109	*TWO*[/P] allows 2 interfaces to connect to SAM expansion port at same time.	£19.95
W1401	SAM Power Supply.	£24.95
W1402	SAM Power Supply with TV Modulator.	£34.95

Prices valid until 1st June 1996. E.& O.E.

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STOP PRESS

We would like to hear from a hardware designer with experience working with RAM to help in the development of a new version of the 1Mb RAM Pack for SAM. We would also like to have ideas from any SAM owners for new hardware projects.

to have become the norm, although readers should understand that this is only because of advertising, we have to have adverts to pay for that number of pages. We hope that being able to offer some advertisers a package rate for both mags will help to get more income for ***FORMAT*** and enable us to keep printing reasonable size issues. Bear in mind that since 1987 there has been only one increase in the UK subscription rate - despite an almost twofold increase in printing, a threefold increase in the cost of envelopes and a not insubstantial rise in postage charges.

And finally, yes you would be better off with the SAM version of PCG's DTP. If you purchased your Spectrum version from us then we will sell you the SAM disc and addendum sheets at a special rate, give Jenny a ring if you are interested. ***Ed.***

Dear Editor,

I have a few questions about Spectrums and SAMs for you:-

1. Is there any PD available for SAM or Spectrum PLUS D especially PD programming language and where do I get it from?
2. Is there any programming language like Amos for the SAM or Spectrum?
3. Is copying Spectrum titles still against the law even though the machine is outdated?
4. Is there any Spectrum 128K emulators with the ability to read PLUS D discs for either the A600, PC286 or SAM Coupe?
5. If I sampled games into a Spectrum emulator on the Amiga and give them out as PD would that be the same as pirating software?
6. I have a hard drive with an 'MFM' style connector I have been told it is one of the earliest type of connectors, is there any way to connect this to a Spectrum or SAM and how much will it cost?
7. My SAM is still under the 2 year warranty and the keyboard has fell out of the base, is this covered in the 2 year warranty. If not my dad is a TV engineer and he has said he could repair it and put the cable back on the board, if he opened the SAM up would that invalidate the warranty?

Yours sincerely, Darren Forster.

1) Yes, if you look back through a few issues of ***FORMAT*** you will find some addresses. Most of it is demo software though, I've never seen any programming languages.

2) What is AMOS?

3) Yes. Definitely. And who says the Spectrum is outdated?

4) I don't know about the Amiga, but there is Z80 for MS-DOS machines which has full 128K emulation with DISCiPLE/PLUS D disc routines built in (see the recent review for more details). There is no 128K emulator for the SAM although some 128K games have been converted by enthusiasts.

5) Yes.

6) No.

7) No, your fault is not covered by SAM's warranty. How did you manage to do it? But yes it would be OK for your Dad to refit (I just hope the keyboard was not damaged.) ***Ed.***

Dear Editor,

I need help a lot of help for my Spectrum +2 and PLUS D. A utility program by Rudolf Precinsky (Copyright Rumatisoft) was published on the cover tape with *Your Sinclair* Issue No 87 March 1993. It is a utility to transfer programs from a PLUS D back on to tape and to catalogue disc, rename files, clear files from memory etc.,

I have followed all the instructions given in the magazine to save the program to disk, it loads back in the computer alright. But when I try to load programs from discs back on to tape following the instructions given in the magazine, I cannot get it to work. So has

anybody got this utility or can give me any advice on how to get it to work. *Your Sinclair* used this for the Beaut Box. Saved programs on a PLUS D disc till needed then transferred them to tape for the duplicators, so it must work. (somehow).

Or has anybody got another program which will transfer PLUS D programs from disc back to tape.

Many thanks in advance to ***FORMAT*** readers who can help me out on this subject.

Yours sincerely, Norman Fryer.

Dear Editor,

In your letters section in the January issue, M.Hayward asks how to change the drive. This little machine code routine may help:-

```
 5 REM ** ALTER DRIVE **
10 CLEAR 39999
20 LET adr=40000
30 FOR f=0 TO 5: READ a: POKE
   adr+f,a: NEXT f:
40 INPUT "Drive No 1-2? ";d
50 POKE adr+1,d
60 RANDOMIZE USR adr
```

I use this as part of an autoload program which among many other things loads the directory and prints the program names into four columns on the screen. Any program can then be loaded by inputting its number. It requires BetaBasic to be in use. If he is interested I should be pleased to send him a copy on disc.

Yours Sincerely, Derek Crabtree.

Dear Editor,

I will be very pleased if you can answer my question. Will any SCART lead connect my SAM to a TV, as the SAM scart socket is not a standard one, and I have had trouble before connecting to a monitor, which caused my old SAM to smoke! This may seem a bit of a silly question coming from a Electrical Engineer but I would like a sure before I try it.

Yours Sincerely, Ian Knight.

Scart (or Peritel to give it its correct name) is one of those standards that many people break. I'm not sure how you managed to get a SAM to smoke, it is definitely too young to get into that habit. But it is best to buy the lead direct from us at £7.95 including UK p&p. ***Ed.***

Dear Editor,

Time again to renew my subscription! Despite (or perhaps because of) the growing number of 486 PCs running Windows 95, ***FORMAT*** goes from strength to strength. Well done.

In the past I have usually added a few words at this point. This years effort has produced quite a soliloquy but I feel the topic is key to the very heart of ***FORMAT***, SAM and informed computing. Use the thoughts below in any way you wish.

Having just read this month's letters I share your feelings with regard to Adrian Walker. How sad. But how many more Mr Walkers are there? Few would be bothered to write.

To put ***FORMAT*** in perspective I don't believe you have ever aimed or claimed to provide a continuous beginners course in Basic or Master DOS. I find that my particular objectives and problems are never exactly the same as others so the most I can ask of ***FORMAT***, unless I phone or write specifically, is to provide part solutions and important clues. It also provides the motivation to investigate new areas. As you remarked "I might not understand the article today but it could be invaluable tomorrow".

For me printer articles were a good example. Before I had a printer they didn't mean much but once I did then they were really helpful. When I need to know more machine code I will return to Carol's series.

So how does someone like Adrian 'climb aboard'? Perhaps readers could provide some clues. My own road to the present took the following course.

College/Work: Commenced a Maths degree - bought first slide rule! Even that was a step forward on log tables.

First job - introduced to a HP programmable desk top, about the size of a 486, which was equivalent to todays programmable pocket calculator. I went on a FORTRAN course. Programs were typed on punched card and submitted overnight to an IBM mainframe. They were returned the next day full of syntax errors!

Over the last 27 years the work environment has evolved through to networked PCs on most desks with mainframe links with access to a wide variety of packages and languages.

Home: ZX81 1K - What a challenge and oh the bad programming practices, but what fun! I even had some very odd bits published in ZX Computing.

48K Spectrum - Infinite storage capacity!

I began to teach myself practical electronics (where there's a will there's a way). The result was a self built Spectrum interface which controlled a Lego robot which was driven from Sinclair's LOGO language. This required learning a little machine code, though my knowledge in this area is still 'sufficient unto the day....' but when I need more I will thoroughly read all Carol's ***FORMAT*** articles. A speech synthesizer again driven from LOGO followed. The pair resulted in a couple of Everyday Electronics articles.

PLUS D and ***FORMAT*** - A major step forward. Using an A/D and the storage available from the disc I could use my Spectrum as a poor man's oscilloscope (bandwidth limited ultimately by the 4MHz Z80 and how clever you can make the machine code). The children now came to meals when called because the Snap Shot button could instantly save the game of the moment.

SAM - Another major step forward. The children remained happy as most Spectrum games still worked. Though I've exploited SAM Basic to write interesting programs I regret I've had no time to break out of the edge connector into hardware. My daughter used *The Secretary* extensively at A Level for creating revision notes. (Copies of the periodic table appeared on the bathroom wall!) More recently she pinched the entire system to provide the numerical simulation for her 3rd year Maths Degree fish population project (a bit more hi-tech than my slide rule).

Next? SAM hard Disc?

So what conclusions can be drawn? Reviewing my own learning process and trying to stand back it is clear that with regard to computing I have been fortunate to have grown up as the technology has developed. This must have helped. Much has been self taught. At the time I needed knowledge many suitable books were available. Much was achieved by experimentation. For example, my foothold in machine code came from a ZX Computing listing which contained some errors. I shall remain forever grateful for the errors because it forced me to investigate. Through investigation came understanding. If the code had worked first time I would have made much less progress.

My experience with self taught electronics is perhaps somewhat more equivalent to the challenge which Mr Walker faced - how to get aboard a well established multifaceted technology. I had covered basic electricity as part of A Level physics. The last chapter of my physics text book dealt with 'new devices' - transistors - with a bit of atomic theory. Today the simplest chips, such as the 555 timer, contain 14 transistors (so bin the physics text book). So where did I go?

Fortunately at the time the Spectrum

had caught the imagination of some of the hobby electronics authors and a prolific R.Penfold was producing several easy to follow books - the vital clues. Supplemented with Everyday Electronics articles these books provided the foundation. After about three months I could even hold a very simple conversation with the expert behind the counter in my local electronic component shop (sadly this is now a Chinese take away but I now understand enough to use Maplin's mail order). Continued reading of various magazines, experimentation and the odd books continued the learning process.

So where should Mr Walker have started? What are the book titles and where are they available. I'm not sure. In the last year I taught my daughter all the SAM Basic she needed (which was not much) for her Maths degree. However, her computing requirements were to simulate the extinction of North Atlantic cod, not discover how SAM pages in it's memory. That and other questions may come later. Then she can read all my back issues of ***FORMAT***.

I suspect that you, like I, grew with the technology. How would you and I climb aboard today? Perhaps we need to find someone 'out there' who has climbed aboard recently, find out how they did it and through ***FORMAT*** tell the world before we hear of any more lost souls cast adrift in their life raft with their SEGA MEGA drive. (I hope he finds landfall on a sunny beach where the local witch doctor has just started using a Spectrum.)

Even the modern introduction to PC's is tending to produce a new generation of 'package users' (not too far removed from games players) who steadfastly ignore the Windows Icon labelled 'QBasic'. I know that some folk regard me as an oddity as I am known to enter QBasic direct from DOS (yes by-passing Windows!) and proceed to 'mill the answer directly out of silicon' or so it seems to them. Perhaps I just like feeling 'in control' of what is happening, or am I just set in my ways?

A practical thought here. QBasic (though not as good as SAM Basic) does have a very good Help File which I have found very useful. If the same existed for SAM could this help the learning process? I suppose it would represent a much improved manual.

The danger is that today's generation will completely by-pass having the sort of satisfaction many of us have gained from writing something ourselves. The sheer amazement I experienced when my Lego robot set off, lemming like, across the kitchen table on pressing the 'go' command in my LOGO control program is impossible to describe. Fortunately I caught it in time.

Is Mr Walkers letter just one random clap of thunder on an otherwise sunny day? Or the leading edge of a problem which will see the next generation of would be programmers still born in the womb? I don't know the answer but it would seem too important to dismiss the issue as merely a lack of effort on his part.

Yours sincerely, Alan Harper.

You have given us a lot to think about there Alan, well done. I look forward to hearing other readers comments.

Many, many thanks for taking the time to write such a good letter. We will make sure Mr Walker gets to see a copy of this issue so he can read it for himself.
Ed.

Letters may be shortened or edited to fit on these pages although we try to edit as little as possible.

This is YOUR letters page so it is up to you to fill it with interesting things. Come on, get writing, any subject even remotely related to computers. Just keep things as short as you can so we can fit in as many as possible each month. Please write clearly or type your letters. Send them to the address on page 3 or fax them to us on 01452 380890.

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We are sorry to say that the range of binders we have been selling for a number years has now been discontinued.
We are urgently attempting to source a new binder and will bring you news of it as soon as we can. In the meantime, if any reader has a source for a suitable A5 binder we would love to hear from you.

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(For SPI please see West Coast advert.)

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